

What is claimed is:

1. A method of cleaning a substrate having a fine structure using a supercritical fluid, comprising:

a cleaning step that uses a supercritical fluid to which a predetermined amount of a tertiary amine compound has been added as a cleaning liquid and cleanses the substrate by having the substrate contact the supercritical fluid to which the tertiary amine compound has been added.

2. A method of cleaning according to claim 1, wherein a substance that is in a gaseous state at ordinary temperature and normal pressure is subjected to a phase change to convert the substance into a supercritical fluid which is used as the cleaning liquid, the substrate is made to contact with the substance in a gaseous state, and then a phase change is effected to convert the substance in a gaseous state contacting the substrate directly into a supercritical fluid without passing a liquid state.

3. A method of cleaning according to either claim 1 or claim 2, further comprising, following the cleaning step, a drying step of drying the substrate by directly gasifying the supercritical fluid in contact with the substrate

without liquefying the supercritical fluid.

4. A method of cleaning according to either claim 1 or claim 2, further comprising, following the cleaning step, a rinsing step of rinsing the substrate by supplying only the supercritical fluid and a drying step of subsequently drying the substrate by directly gasifying the supercritical fluid in contact with the substrate without liquefying the supercritical fluid.

5. A method of cleaning a substrate having a fine structure using a supercritical fluid, comprising:

a cleaning step of cleaning the substrate using a single tank-type cleaning/drying apparatus having a single tank cleaning/drying chamber by supplying the supercritical fluid, to which a predetermined amount of tertiary amine compound has been added, to the cleaning/drying chamber in which the substrate is held;

a rinsing step of subsequently rinsing the substrate while replacing the supercritical fluid to which the tertiary amine compound has been added by supplying only the supercritical fluid to the cleaning/drying chamber; and

a drying step of subsequently drying the substrate by

removing the supercritical fluid in contact with the substrate by directly gasifying the supercritical fluid without liquefying the supercritical fluid,

wherein the cleaning step and the drying step are carried out successively in the single tank cleaning/drying chamber.

6. A method of cleaning according to claim 5, wherein in the cleaning step, when a substance that is in a gaseous state at ordinary temperature and normal pressure is subjected to a phase change to convert the substance into a supercritical fluid which is used as the cleaning liquid, the substance is introduced into the cleaning/drying chamber in a gaseous state, a phase change is effected so that the substance in the gaseous state is converted directly into a supercritical fluid, and then the predetermined amount of the tertiary amine compound is supplied and added.

7. A method of cleaning according to any of claim 1 to claim 6, wherein supercritical carbon dioxide is used as the supercritical fluid.

8. A method of cleaning according to any of claim 1 to claim 7, wherein the tertiary amine compound is an aliphatic amine having at least one substituent group selected from an alkyl group, a hydroxyalkyl group, and an alkoxyalkyl group.

9. A method of cleaning according to any of claim 1 to claim 7, wherein the tertiary amine compound is an aromatic amine having at least one substituent group selected from an aryl group and an aralkyl group.

10. A method of cleaning according to any of claim 1 to claim 7, wherein the tertiary amine compound is a heterocyclic amine.